

**Amendments to the claims:**

This listing of the claims will replace all prior versions and listings of the claims in the application:

**Listing of the Claims:**

1. (currently amended) A planar inverted F antenna configured for operation at an operating frequency band, the planar inverted F antenna comprising:  
first and second conductive antenna segments wherein the first and second conductive antenna segments are separated by at least approximately 3 mm;  
a third conductive antenna segment coupling the first and second conductive antenna segments;  
a reference voltage coupling on the first conductive antenna segment; and  
a feed coupling on the first conductive antenna segment, wherein a current null is present on the first conductive antenna segment between the feed and reference voltage couplings at the operating frequency band.
2. (original) A planar inverted F antenna according to Claim 1 wherein the feed and reference voltage couplings are separated by at least approximately 15 mm.
3. (currently amended) A planar inverted F antenna according to Claim 1 wherein the first and second conductive antenna segments are rectilinear and parallel.
4. (currently amended) A planar inverted F antenna according to Claim 3 wherein the third conductive antenna segment is coupled to the first and second conductive antenna segments at ends of the first and second conductive antenna segments.
5. (currently amended) A planar inverted F antenna according to Claim 1 wherein the feed coupling is spaced apart from the third conductive antenna segment by a greater distance than the reference voltage coupling.

6. (currently amended) A planar inverted F antenna according to Claim 5 wherein the first and the third conductive antenna segments define an angle of approximately 90 degrees.

7. (currently amended) A planar inverted F antenna according to Claim 1 wherein the first conductive antenna segment is longer than the second conductive antenna segment.

8. (currently amended) A planar inverted F antenna according to Claim 1 wherein the operating frequency band is in the range of approximately 1700 MHz to 2500 MHz and wherein the current null is present between the feed and reference voltage couplings at the operating frequency band in the range of approximately 1700 MHz to 2500 MHz.

9. (currently amended) A planar inverted F antenna according to Claim 1 further comprising:

a printed circuit board including a reference voltage conductor and an antenna feed conductor, the reference voltage coupling being electrically coupled to the reference voltage conductor of the printed circuit board and the feed coupling being electrically coupled to the antenna feed conductor wherein the first, second, and third conductive antenna segments are spaced apart from the printed circuit board.

10. (original) A planar inverted F antenna according to Claim 9 wherein the reference voltage coupling is electrically coupled to the reference voltage conductor through an electrical short.

11. (original) A planar inverted F antenna according to Claim 9 wherein the reference voltage coupling is electrically coupled to the reference voltage conductor through a non-zero impedance.

12. (original) A planar inverted F antenna according to Claim 1 wherein the operating frequency band comprises a high-frequency band, wherein the planar inverted F antenna is

further configured for operation at a low-frequency band, wherein the current null is present between the feed and reference voltage couplings at the high-frequency band, and wherein the current null is not present between the feed and reference voltage couplings at the low-frequency band.

13. (currently amended) A planar inverted F antenna according to Claim 12 wherein the high-frequency band is ~~greater than~~ above 1700 MHz and wherein the low-frequency band is ~~less than~~ below 1100 MHz.

14. (currently amended) A planar inverted F antenna comprising:  
a conductive antenna element;  
a feed coupling on the conductive antenna element; and  
first and second reference voltage couplings on the conductive antenna element wherein an electrical distance between the feed coupling and ~~either of the first and second~~ reference voltage couplings is ~~greater~~ less than an electrical distance between the first and second reference voltage couplings and wherein an electrical distance between the feed coupling and the second reference voltage coupling is less than the electrical distance between the first and second reference voltage couplings.

15. (original) A planar inverted F antenna according to Claim 14 wherein the planar inverted F antenna is configured for operation at an operating frequency band and wherein a current null is present on the conductive antenna element between the feed coupling and at least one of the reference voltage couplings at the operating frequency band.

16. (currently amended) A planar inverted F antenna according to Claim 15 wherein the operating frequency band is in the range of approximately 1700 MHz to 2500 MHz and wherein the current null is present between the feed coupling and at least one of the reference voltage couplings at the operating frequency band in the range of approximately 1700 MHz to 2500 MHz.

17. (original) A planar inverted F antenna according to Claim 15 wherein the operating frequency band comprises a high-frequency band, wherein the planar inverted F antenna is further configured for operation at a low-frequency band, wherein the current null is present at the high-frequency band, and wherein the current null is not present between the feed coupling and the at least one of the reference voltage couplings at the low-frequency band.

18. (currently amended) A planar inverted F antenna according to Claim 17 wherein the high-frequency band is ~~greater than~~ above 1700 MHz and wherein the low-frequency band is ~~less than~~ below 1100 MHz.

19. (currently amended) A planar inverted F antenna according to Claim 14 further comprising:

a printed circuit board including a reference voltage conductor and an antenna feed conductor, the first and second reference voltage couplings being electrically coupled to the reference voltage conductor of the printed circuit board, and the feed coupling being electrically coupled to the antenna feed conductor wherein the conductive antenna element is spaced apart from the printed circuit board.

20. (original) A planar inverted F antenna according to Claim 19 wherein at least one of the first and second reference voltage couplings is electrically coupled to the reference voltage conductor through an electrical short.

21. (original) A planar inverted F antenna according to Claim 19 wherein at least one of the first and second reference voltage coupling is electrically coupled to the reference voltage conductor through a non-zero impedance.

22. (original) A planar inverted F antenna according to Claim 14 wherein the feed coupling and at least one of the first and second reference voltage couplings are separated by an electrical distance of at least approximately 15 mm.

23. (original) A planar inverted F antenna according to Claim 14 wherein the conductive antenna element comprises,  
first and second antenna segments, wherein the first and second antenna segments are spaced apart,  
a third antenna segment coupled between the first and second antenna segments, and  
wherein the feed coupling and the first and second reference voltage couplings are on the first segment with the feed coupling being between the first and second reference voltage couplings.

24. (original) A planar inverted F antenna according to Claim 23 wherein the conductive antenna element further comprises a fourth antenna segment coupled to the first antenna segment.

25. (original) A planar inverted F antenna according to Claim 24 wherein the fourth antenna segment is coupled to the first antenna segment adjacent the feed coupling.

26. (original) A planar inverted F antenna according to Claim 14 wherein the feed coupling is spaced apart from at least one of the first and second reference voltage couplings by an electrical distance of at least approximately 10 mm.

27. (original) A planar inverted F antenna according to Claim 14 wherein the antenna element includes,

an antenna base with the feed coupling and the first and second reference voltage couplings thereon,

a first segment extending from the antenna base adjacent the first reference voltage coupling, and

a second antenna segment extending from the antenna base adjacent the feed coupling.

28. (currently amended) A communications device comprising:

a transceiver configured to transmit and/or receive radio communications at an operating frequency band, the transceiver providing a reference voltage and a transceiver feed; and

a planar inverted F antenna configured for operation at the operating frequency band, the planar inverted F antenna including first and second conductive antenna segments wherein the first and second conductive antenna segments are separated by at least approximately 3 mm, a third conductive antenna segment coupling the first and second conductive antenna segments, a reference voltage coupling on the first conductive antenna segment wherein the reference voltage coupling of the planar inverted F antenna is coupled to the reference voltage of the transceiver, and a feed coupling on the first conductive antenna segment wherein the feed coupling of the planar inverted F antenna is coupled to the transceiver feed and wherein a current null is present on the first conductive antenna segment between the feed and reference voltage couplings at the operating frequency band.

29. (original) A communications device according to Claim 28 wherein the feed and reference voltage couplings are separated by at least approximately 15 mm.

30. (currently amended) A communications device according to Claim 28 wherein the first and second conductive antenna segments are rectilinear and parallel.

31. (currently amended) A communications device according to Claim 30 wherein the third conductive antenna segment is coupled to the first and second conductive antenna segments at ends of the first and second conductive antenna segments.

32. (currently amended) A communications device according to Claim 28 wherein the feed coupling is spaced apart from the third conductive antenna segment by a greater distance than the reference voltage coupling.

33. (currently amended) A communications device according to Claim 32 wherein the first and the third conductive antenna segments define an angle of approximately 90 degrees.

34. (currently amended) A communications device according to Claim 28 wherein the first conductive antenna segment is longer than the second conductive antenna segment.

35. (currently amended) A communications device according to Claim 28 wherein the operating frequency band is in the range of approximately 1700 MHz to 2500 MHz and wherein the current null is present between the feed and reference voltage couplings at the operating frequency band in the range of approximately 1700 MHz to 2500 MHz.

36. (currently amended) A communications device according to Claim 28 further comprising:

a printed circuit board including a reference voltage conductor and an antenna feed conductor, the reference voltage coupling being electrically coupled to the reference voltage conductor of the printed circuit board and the feed coupling being electrically coupled to the antenna feed conductor wherein the first, second, and third conductive antenna segments are spaced apart from the printed circuit board.

37. (original) A communications device according to Claim 36 wherein the reference voltage coupling is electrically coupled to the reference voltage conductor through an electrical short.

38. (original) A communications device according to Claim 36 wherein the reference voltage coupling is electrically coupled to the reference voltage conductor through a non-zero impedance.

39. (original) A communications device according to Claim 28 wherein the operating frequency band comprises a high-frequency band, wherein the planar inverted F antenna is further configured for operation at a low-frequency band, wherein the current null is present between the feed and reference voltage couplings at the high-frequency band, and wherein the current null is not present between the feed and reference voltage couplings at the low-frequency band.

40. (currently amended) A communications device comprising:  
a transceiver configured to transmit and/or receive radio communications at an operating frequency band, the transceiver providing a reference voltage and a transceiver feed; and  
a planar inverted F antenna including a conductive antenna element, a feed coupling on the conductive antenna element wherein the feed coupling is coupled to the transceiver feed, and first and second reference voltage couplings on the conductive antenna element wherein the first and second reference voltage couplings are coupled to the reference voltage of the transceiver and wherein an electrical distance between the feed coupling and ~~either of the first and second~~ reference voltage couplings is ~~greater~~ less than an electrical distance between the first and second reference voltage couplings and wherein an electrical distance between the feed coupling and the second reference voltage coupling is less than the electrical distance between the first and second reference voltage couplings.

41. (original) A communications device according to Claim 40 wherein the planar inverted F antenna is configured for operation at an operating frequency band and wherein a current null is present on the conductive antenna element between the feed coupling and at least one of the reference voltage couplings at the operating frequency band.

42. (currently amended) A communications device according to Claim 41 wherein the operating frequency band is in the range of approximately 1700 MHz to 2500 MHz and wherein the current null is present between the feed coupling and at least one of the reference voltage couplings at the operating frequency band in the range of approximately 1700 MHz to 2500 MHz.

43. (original) A communications device according to Claim 41 wherein the operating frequency band comprises a high-frequency band, wherein the planar inverted F antenna is further configured for operation at a low-frequency band, wherein the current null is present at the high-frequency band, and wherein the current null is not present between the feed coupling and the at least one of the reference voltage couplings at the low-frequency band.



44. (currently amended) A communications device according to Claim 40 further comprising:

a printed circuit board including a reference voltage conductor and an antenna feed conductor, the first and second reference voltage couplings being electrically coupled to the reference voltage conductor of the printed circuit board, and the feed coupling being electrically coupled to the antenna feed conductor and wherein the conductive antenna element is spaced apart from the printed circuit board.

45. (original) A communications device according to Claim 44 wherein at least one of the first and second reference voltage couplings is electrically coupled to the reference voltage conductor through an electrical short.

46. (original) A communications device according to Claim 44 wherein at least one of the first and second reference voltage coupling is electrically coupled to the reference voltage conductor through a non-zero impedance.

47. (original) A communications device according to Claim 40 wherein the feed coupling and at least one of the first and second reference voltage couplings are separated by an electrical distance of at least approximately 15 mm.

48. (original) A communications device according to Claim 40 wherein the conductive antenna element comprises,

first and second antenna segments, wherein the first and second antenna segments are spaced apart,

a third antenna segment coupled between the first and second antenna segments, and  
wherein the feed coupling and the first and second reference voltage couplings are on the first segment with the feed coupling being between the first and second reference voltage couplings.

49. (original) A communications device according to Claim 48 wherein the conductive antenna element further comprises a fourth antenna segment coupled to the first antenna segment.

50. (original) A communications device according to Claim 49 wherein the fourth antenna segment is coupled to the first antenna segment adjacent the feed coupling.

51. (original) A communications device according to Claim 40 wherein the feed coupling is spaced apart from at least one of the first and second reference voltage couplings by an electrical distance of at least approximately 10 mm.

52. (original) A communications device according to Claim 40 wherein the antenna element includes,

an antenna base with the feed coupling and the first and second reference voltage couplings thereon,

a first segment extending from the antenna base adjacent the first reference voltage coupling, and

a second antenna segment extending from the antenna base adjacent the feed coupling.

53. (new) A planar inverted F antenna according to Claim 1 wherein the operating frequency band is above 1700 MHz and wherein the current null is present between the feed and reference voltage couplings at the operating frequency band above 1700 MHz.

54. (new) A communications device according to Claim 28 wherein the operating frequency band is above 1700 MHz and wherein the current null is present between the feed and reference voltage couplings at the operating frequency band above 1700 MHz.

55. (new) A communications device according to Claim 39 wherein the high-frequency band is above 1700 MHz and wherein the low-frequency band is below 1100 MHz.

56. (new) A planar inverted F-antenna according to Claim 15 wherein the operating frequency band is above 1700 MHz and wherein the current null is present between the feed coupling and at least one of the reference voltage couplings at the operating frequency band above 1700 MHz.

57. (new) A communications device according to Claim 41 wherein the operating frequency band is above 1700 MHz and wherein the current null is present between the feed coupling and at least one of the reference voltage couplings at the operating frequency band above 1700 MHz.

58. (new) A communications device according to Claim 43 wherein the high-frequency band is above 1700 MHz and wherein the low-frequency band is below 1100 MHz.